

# PATENT COOPERATION TREATY


## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

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Applicant's or agent's file reference CH920020024		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/IB 03/04854	International filing date (day/month/year) 30.10.2003 ✓	Priority date (day/month/year) 20.11.2002 ✓	
International Patent Classification (IPC) or both national classification and IPC H04Q7/38			
Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION et al. ✓			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 9 sheets, including this cover sheet. ✓</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets. ✓</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>			
Date of submission of the demand  03.04.2004 ✓		Date of completion of this report  25.02.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Rosenauer, H  Telephone No. +49 89 2399-7231	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/B 03/04854**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1-17 as originally filed

**Claims, Numbers**

1-24 filed with telefax on 01.02.2005

**Drawings, Sheets**

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	
	No: Claims	1, 15-17, 21,23,24
Inventive step (IS)	Yes: Claims	
	No: Claims	1-24
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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Reference is made to the following documents:

D1: US-A-5 862 480  
D2: WO 98/27766  
D3: US-A-5 301 359

**A. Citations and explanations in respect of Item V:**

- 1 It is considered appropriate to examine **independent claim 23** first

**Document D1** (see in particular column 1, lines 19 to 22; column 4, lines 22 to 39; column 9, line 36 to column 10, line 67; column 12, lines 13 to 53; column 13, lines 46 to 56; column 14, line 50 to column 15, line 28; figures 2, 3, 12, 14, 17), which is considered to represent the most relevant state of the art, discloses, according to **all** the features of **claim 23** (applying the terminology of claim 23 and references to D1), a method for establishing a channel for wireless communication (see in particular column 1, lines 19 to 22), comprising the steps performed by a network control unit (see in particular column 9, lines 36 to 38; "300" in figure 3):

identifying availability of different communication networks for a communication device (see in particular column 10, lines 8 to 10; "1216" in figure 12), and

notifying the communication device of a recommendation of identified communication networks (see in particular column 15, lines 6 to 10; "1710" in figure 17), which recommendation is binding for the communication device to connect to such recommended network (see in particular column 15, lines 23 to 24), comprising the steps performed by the communication device (see in particular column 15, lines 6 to 24):

receiving the notification (see in particular column 15, lines 6 to 8; "1710" in figure 17), and

initiating access to a recommended communication network for establishing the communication channel in response to the notification (see in particular column 15, lines 21 to 24; "1714" in figure 17).

Therefore, the subject-matter of claim 23 is not new, Article 33 (2) PCT.

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- 2 The same considerations as made above in paragraph 1 in respect of claim 23 are also valid for **independent claim 24**, which contains the corresponding features of claim 24 in terms of a system claim.

The subject-matter of claim 24 is therefore not new, Article 33 (2) PCT.

- 3 Independent **claims 1, 15 to 17 and 21** do not comply with the requirements of Article 33 (2) PCT for the following reasons:

The subject-matter of claims 1, 15 to 17 and 21 are formulated much broader than claim 23 and accordingly they can be seen in document D1 (see 1 above).

The subject-matter of claims 1, 15 to 17 and 21 is therefore not new, Article 33 (2) PCT.

- 4 **Document D2** (see in particular page 1, lines 6 to 13; page 2, lines 10 to 30; page 4, lines 5 to 35; page 5, line 31 to page 7, line 30; page 8, line 17 to page 9, line 30; figures 1 to 4), discloses, according to most of the features of **claim 22** (applying the terminology of claim 22 and references to D1), an electronic communication device (see in particular page 1, lines 6 to 13) comprising  
access units for different wireless networks (see in particular page 9, lines 6 to 13; "**KM1, KM2, KM3**" in figure 4), and  
a control unit for having the corresponding access unit establish a communication channel on a particular one of the networks in response to a notification from a network control unit recommending this network (see in particular page 9, lines 25 to 30; "**IRM, EM**" in figure 4).

The subject-matter of claim 22 differs from that described in document D2 merely in that a recommendation is binding for the communication device to connect to such recommended network.

The objective technical problem to be solved may therefore be regarded as how to indicate which network is to be selected.

In consulting the prior art in the general field of network selection, the skilled person,

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wishing to find a solution to overcome the above mentioned problem, would come across the **document D1** (see in particular column 1, lines 19 to 22; column 4, lines 22 to 39; column 9, line 36 to column 10, line 67; column 12, lines 13 to 53; column 13, lines 46 to 56; column 14, line 50 to column 15, line 28; figures 2, 3; 12, 14, 17), which describes that a recommendation is binding for the communication device to connect to such recommended network (see in particular column 15, lines 23 to 24).

For the skilled person, therefore starting from the electronic communication device described in D2 and being aware both of the above stated problem and of the principle of the solution described in document D1, it would be obvious to apply said principle to the arrangement described in document D2, in order to modify the electronic communication device of document D2 in such a way as to provide an electronic communication device in which the above stated problem has been eliminated.

The skilled person would therefore arrive, without the exercise of inventive skill, at the electronic communication device corresponding to the subject-matter of claim 22.

The subject-matter of claim 22 therefore does not involve an inventive step, Article 33 (3) PCT.

- 5 It should furthermore be noted that even if the Applicant intended to argue novelty of claims 1, 15 to 17 and 23 to 24, based on a slightly different interpretation of the features of claims 1, 15 to 17 and 23 to 24 and those disclosed in document **D1**, the subject-matter of said claims would **not involve an inventive step**, Article 33 (3) PCT, having regard to the disclosure of document D1 and the normal knowledge of a person skilled in the art of wireless communication systems and related channel establishing methods. In this respect it should be noted that document **D2** (see in particular page 1, lines 6 to 13; page 2, lines 10 to 30; page 4, lines 5 to 35; page 5, line 31 to page 7, line 30; page 8, lines 17 to 37; figures 1 to 4) describes a similar method for establishing a channel for wireless communication comprising identifying availability of different communication networks and notifying a communication device of identified communication networks.
- 6 Furthermore, **dependent claims 2 to 14 and 18 to 20** do not contain any additional

features which, in combination with the features of any claim to which they refer, involve an inventive step for the reason that the subject-matter of said claims **either** is **in principle** derivable from the disclosure of document **D1** (for claim 2: see column 14, line 59 to 65, "1706" in figure 17; for claim 4: see column 15, lines 6 to 10; for claim 5: see column 10, lines 8 to 33; for claims 6 to 9: see column 15, lines 25 to 28), from a similar application described in document **D2** (see in particular page 1, lines 6 to 13; page 2, lines 10 to 30; page 4, lines 5 to 35; page 5, line 31 to page 7, line 30; page 8, line 17 to page 9, line 30; figures 1 to 4), or from an similar application described in document **D3** (see in particular column 1, lines 9 to 12; column 1, lines 59 to 63; column 2, line 12 to column 4, line 9; figures 1 to 3), or represents minor design details which are based on the general design competence of the person skilled in the field of wireless communication systems.

Dependent claims 2 to 14 and 18 to 20 therefore **do not** meet the requirements of Article 33 (3) PCT.

**B. Further remarks:**

1 The claims do not meet the requirements of Article 6 PCT for the following reasons:

1.1 The application contains two independent claims (**Claims 1 and 24**) relating to a method and two independent claims (**Claims 15 and 22**) relating to a computer program each having overlapping scope. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

In order to overcome this objection, it would appear appropriate to file an amended set of claims defining the subject-matter in terms of a single independent claim per category followed by dependent claims covering features which are merely optional (Rule 6.4 PCT).

1.2 The expression "different communication networks" in claim 1 is ambiguous, as it is unclear whether those networks are operated by different providers or whether those

networks use different access methods. If latter is the case - which appears to be true in the light of the description - then said different communication networks should be amended to "different communication networks using different access methods" to clearly distinguish them from networks which are operated by different providers.

**1.3 For clarity reasons, claim 16 should read:**

"Communication network control unit comprising means for carrying out **all** the steps a method of one of the claims 1 to 14."

- 2 Claim 6 relates to a method wherein communication networks are recommended according to "communication costs". This feature, however, is not technical and is therefore not relevant for the novelty and inventive step aspect (Articles 33 (2) and (3) PCT).
- 3 To meet the requirements of Rule 6.3 (b) PCT, any independent claim should have been correctly cast in the **two-part form**, with those features which in combination are part of the nearest prior art (as. e.g. described in the **document D1**) being placed in the preamble.
- 4 Reference signs in parentheses should have been inserted in all claims to increase their intelligibility, Rule 6.2 (b) PCT. This applies both to the preamble and the characterizing portion.
- 5 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.
- 6 Page 5, line 16 comprises no meaningful sentence. It should be deleted for the sake of clarity (Article 6 PCT).
- 7 The reference sign "**27**" in figure 2 should have been replaced by "**22**", Rule 11.13(m) PCT.
- 8 The word "**he**" on page 17, line 12 should have been replaced by "**the**".



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- 9 The number "10" used in claim 21 should have been replaced by "20", Article 6 PCT:-

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## CLAIMS

- 5 1. Method for managing network resources for wireless communication, comprising steps being automatically executed by a network control unit:
- identifying availability of different communication networks for a communication device,
  - notifying the communication device of a recommendation of identified communication networks which recommendation is binding for the communication device to connect to
- 10 such recommended network.
2. Method according to claim 1, comprising
- determining a at least rough location of the communication device, and
  - identifying communication networks covering the device's location.
- 15 3. Method according to claim 1 or claim 2, comprising identifying communication networks covering the device's location according to a look-up table.
- 20 4. Method according to one of the preceding claims, comprising identifying access capability of the communication device to other communication networks.
5. Method according to claims 2 or 3, and claim 4, comprising identifying communication networks covering the device's location and being accessible for
- 25 the communication device.
6. Method according to one of the preceding claims, wherein communication networks are recommended according to communication costs.
- 30 7. Method according to one of the preceding claims, wherein communication networks are recommended according to a current load.

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8. Method according to one of the preceding claims,  
wherein communication networks are recommended according to bandwidth properties.
9. Method according to one of the preceding claims,  
5 wherein communication networks are recommended according to a customer profile.
10. Method according to one of the preceding claims,  
wherein a hand over process for establishing a communication channel on a recommended  
communication network is started after the communication device is notified.
- 10
11. Method according to one of the preceding claims,  
wherein the identification of available networks is triggered by a network control unit.
12. Method according to one of the preceding claims,  
15 wherein the identification of available networks is triggered periodically.
13. Method according to one of the preceding claims,  
wherein the identification of available networks is triggered when a physical movement of the  
communication device is detected.
- 20
14. Method according to one of the preceding claims,  
wherein the identification of available networks is triggered by a capacity shortage on at least  
one of the networks.
- 25 15. Computer program element comprising computer program code which, when loaded in a  
processor unit of an electronic device, configures the processor unit to perform a method as  
claimed in any one of the preceding claims.
16. Communication network control unit,  
30 being configured for executing a method according to one of the claims 1 to 14.

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17. Method for establishing a channel for wireless communication, comprising
- receiving a notification from a network control unit, the notification indicating a recommendation of identified available communication networks for establishing the communication channel, which recommendation is binding for the communication device to connect to such recommended network,
  - initiating access to a recommended communication network for establishing the communication channel in response to the notification.
18. Method according to claim 17, comprising
19. Method according to one of the preceding claims 17 or 18, comprising selecting one preferred communication network out of several recommended networks indicated in the notification before initiating access to this network.
20. Method according to one of the preceding claims 17 to 19, comprising deriving access data from an information block of the notification and supporting access to the communication network with the access data derived.
21. Computer program element comprising computer program code which, when loaded in a processor unit of a communication device, configures the processor unit to perform a method as claimed in any one of the preceding claims 17 to 10.
22. Electronic communication device, comprising
- access units for different wireless networks, and
  - a control unit for having the corresponding access unit establish a communication channel on a particular one of the networks in response to a notification from a network control unit recommending this network, which recommendation is binding for the communication device to connect to such recommended network.
23. Method for establishing a channel for wireless communication, comprising steps performed by a network control unit:

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- identifying availability of different communication networks for a communication device, and
- notifying the communication device of a recommendation of identified communication networks, which recommendation is binding for the communication device to connect to such recommended network,

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comprising steps performed by the communication device:

- receiving the notification, and
- initiating access to a recommended communication network for establishing the communication channel in response to the notification.

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24. Communication system, comprising

- a first network for wireless communication,
- a second network for wireless communication,
- a communication device being capable of accessing at least the first and the second network,

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- a network control unit being configured for:

- identifying availability of communication networks for the communication device,
- notifying the communication device of a recommendation of identified communication networks, which recommendation is binding for the

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communication device to connect to such recommended network,

- the communication device comprising a control unit for initiating access to a recommended network for establishing a communication channel in response to the notification.